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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,886	12/29/2005	Masakazu Ohara	033634-003	1767

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EXAMINER	
LE, HOA T	
ART UNIT	**PAPER NUMBER**
1794	

NOTIFICATION DATE	DELIVERY MODE
11/05/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/540,886	OHARA ET AL.	
	Examiner	Art Unit	
	H. T. Le	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, with regard to the term "oxygen ratio", as set forth in the last office action and further discussed below.

2.1. Applicant argued that the term "oxygen ratio" is known in the art citing the Mangold patent (US 6,063,354) as an example. Note that the specification in Mangold defines oxygen ratio, which indicates that it is not as common as Applicant argued. In addition, oxygen ratio could mean a wide range of meanings because there is oxygen present in the gas flame, in the combustible silicon-source, in the resulting silica particles, etc. Without a clear definition of oxygen ratio, the instant specification fails to enable one skilled in the art to make and/or use the invention, especially when the oxygen ratio is described to affect the properties of the resulting silica particles.

Claim Rejections - 35 USC § 102

3. **Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by the Mangold patent (US 6,063,354).**

3.1. Claim 1: Mangold teaches silica particles of the claimed invention because the silica particles taught by Mangold possess the same BET surface area and made by from the same flame hydrolysis process under the same conditions as disclosed in the instant specification. The silica particles disclosed in the Mangold patent possess the

same BET surface area as the claimed silica (see Mangold, col. 1, lines 60-65 and compare to the BET reported in the instant specification at Table 2). Furthermore, Mangold teaches an oxygen ratio (of feeding oxygen to required oxygen) from 0.7 to 0.9 which is equivalent to a reverse oxygen ratio (from required to feeding) of 1.1 to 1.4, which is the same oxygen ratio reported at Table 1 and Table 4 in the instant specification. More importantly, Mangold discloses a Fractal Dimension which is equivalent to the claimed 'fractal structure parameter' in milli-dimension (that is

Fractal Dimension = $1000\alpha_1$= 1000xFractal Structure parameter

Take a look at Table 1 col. 7-8 of the Mangold patent:

At BET specific surface area (SSA) of $85m^2/g$, the claimed formula (1) has the values:

(0.0068S + 2.548) x 1000 = 1970 (1a) and (0.0068S + 3.748) x 1000 = 3170 (1b);

The Fractal dimension is reported to be 2,607 and 2,584 which is larger than (1a) and smaller (1b)

Similarly, at BET specific surface area (SSA) of 82, we have:
(0.0068S + 2.548) x 1000□ı□□□ıą and (0.0068S + 3.748) x 1000 = 3136 (1b); and the reported Fractal Dimension is 2581 which is larger than 1a and smaller than 1b.

Therefore, the fractal dimension satisfies the claimed formula (1) in milli-unit.

3.2. Applicant argued that the silica particles taught by Mangold are prepared by a method different than the method disclosed in the present specification because the "oxygen is not fed together with the inflammable gas from the outer tube". Feeding

oxygen and hydrogen gases from an outer tube is described in the instant specification as an option (see instant specification, page 10, lines 3-6), not a requirement. The specification does not claim that such feature would affect the properties of the silica particles. Neither is such feature present in the claims. Here, the method taught by Mangold features both hydrogen and oxygen present as the flame hydrolysis gas, and thus it is necessarily inherent that the resulting silica particles possess the same properties as claimed, especially when all other properties, BET specific surface area, particle diameter and viscosity of the silica particles resulted from Mangold's method are within the same range as the silica particles according to the claimed invention. See Mangold, col. 1, lines 61-66 and examples (note that Cps unit is the same as mPas unit)

4. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/98211 publication ("WO'211") or US 7,083,770 (US'770)

4.1. Examiner's Note: The US Patent No. 7,083,770 is used as the translation copy of the WO'211 publication because it is a US equivalent of the WO'211 publication. All the citations herein are based on the US 7,083,770 patent (US'770).

Claim 1: WO'211 and US'770 each teaches silica particles made by flame hydrolysis in hydrogen-oxygen gas that is similar to the method disclosed in the instant specification. See US '770, col.4, lines 50-59 and 67. The method involves the same silicon-source compounds as disclosed in the instant specification (US '770, col. 4, lines 63-66. The concentration of the silica in the flame is the same (US'770, col. 5, lines 32-37); this factor affects the fractal shape parameter of the resulting silica particles. Therefore, it is necessarily inherent that the resulting silica particles from the method taught in WO'211

or US '770 possess the same fractal structure parameters as claimed. In addition, the SSA and the particle size of silica particles are also within the same range as those disclosed in the instant specification. See US '770, Table 1. Therefore, it is necessarily inherent that the resulting silica particles from the method taught in WO'211 or US'770 possess the same fractal structure parameters as claimed.

Claims 2-3: See US'770, col. 7, lines 52-62.

Claim 4: See US'770, col. 8, lines 41-52.

Claim 5: See US'770, col. 1, lines 7-10; Example 2; and col. 13, lines 49-58.

Claims 6-7: See US'770, col. 1, lines 10-16 and col. 8, lines 41-51; and examples 3-4.

5. Other references, which teach method of making silica particles by flame hydrolysis in hydrogen-oxygen flame, are cited as art of interest.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. Thi Le/
H. (Holly) T. Le
Primary Examiner
Art Unit 1794

October 27, 2007